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JUNE 5.

MR. CHARLES MORRIS in the chair.

Twenty-three persons present.

JUNE 12.

REV. HENRY C. MCCOOK, D. D., Vice-President, in the chair.

Thirty-one persons present.

The following were presented for publication:—

Certain Sand Mounds of the St. Johns River, Florida. Part II.

By Clarence B. Moore.

Crania from the Mounds of the St. Johns River, Florida. By Harrison Allen, M. D.

On a New Species of the Isopod Genus *Bathynomus*. By Dr. A. Ortmann.

The Changes which Take Place in the Skull, Coincident with Shortening of the Face-Axis.—Dr. Harrison Allen remarked that the anatomist, while interested in establishing co-ordinates, is well aware of the difficulties which are continually encountered. Still it must be acknowledged that co-ordinations exist between the component parts of every organism and as knowledge extends they will be gradually formulated.

The ensuing observations may be of value in denoting the kinds of changes which take place in the skull upon the shortening of the face-axis.

It has been assumed by authors that the shapes and positions of the teeth are the chief agents in modifying the shape and the size of the region of the face. In Chiroptera this is not the case. In comparing the cranium of the long-faced *Choeronycteris* and the short-faced *Ametrida*, it is remarked that not only are the face-proportions contrasted, but those of the zygomatic arches are changed (namely, in being slender or absent in the one and high in the other), while the face is broad at its base and the mesopterygoid fossa widened. The greyhound and the English pug-dog exhibit similar contrasts. In these varieties, in addition, the tympanic bulla is relatively larger in the pug-dog than in the greyhound. In Proboscidea the contrast between the length of the face-axis in *Mastodon* and *Elephas* can be expressed in the development of the pneumatic spaces in the skull; not, indeed, by the inflation of the tympanic

bullæ, or other parts of the base of the skull, but by the inflation of the diploic structure of the frontal and parietal bones.

In Edentata the difference between the long-faced *Tatusia*, *Myrmecophaga* and the short-faced *Megatherium*, *Bradypus* and *Cholopus*, is about what has been already noted in the foregoing examples. The zygomatic arch in the group last named, although incomplete, is high. The tympanic bulla, it is true, is inconstantly inflated, but that of the sinus in the frontal bone, compared with what is noted in the long-faced types, is like that which is seen in *Elephas* as compared with *Mastodon*.

Similar points can be established in the Quadrumana. *Macacus* can be separated from *Cynopithecus*, not only by the length of the face, but by *Macacus* having a more inflated tympanic bone. The same remark is true of *Propithecus* and *Nycticebus* as compared with *Lemur*.

The genera of Carnivora, as illustrated in *Melursus* and *Helarcotos*, are in evidence of the same.

Even in birds, as was suggested by Mr. Fred. Lucas to Dr. Allen, the difference between the owl and the pelican and stork can be denoted by the amount of diploic structure in the head, as well as by the length of the face.

In Artiodactyla the evidence is obscure. In the remarkable fossil genus *Cyclopidius*, described by Prof. Cope, all the co-ordinates appear to be well established, namely, an extreme short face-axis is accompanied with great increase of width of the zygomatic arches and large tympanic bones. But these bones are generally large in the long-faced artiodactyles. The influence of many factors of necessity must be borne in mind before all the terms of the equation can be determined.

Care must be taken not to confound an isolated inflation of the tympanic bulla with the probable co-ordination above named. In *Corynorhinus*, *Euderma* and *Dipus*, as in some species of *Vulpes*, the inflation is correlative with the size of the auricle, at least is independent of the problem of face-shortening.

Many suggestive features present themselves in the skull of man. The inflations here, while basic, are not seen in the tympanic bones, but in the tissue at the median aspect of the petrosal bones, and at the sides of the exoccipitals. Prognathic and orthognathic forms can be distinguished, as a rule, readily by these parts of the base of the skull; but, as in all things pertaining to the study of the human skull co-ordinations are exceptionally difficult to establish. We are here dealing not with characterizations of a generic kind, but with those which are mutatory in tribal or racial groups of sub-species, and it is not reasonable to look for features so sharply defined as are those of genera of quadrupeds.

Hyperostosis on the Inner Side of the Human Lower Jaw. Dr.

Harrison Allen also stated that in 1889 (Toner Lecture, Smithsonian Institution) he announced the presence of a nodular hyperostosis on the inner side of the horizontal ramus of the lower jaw of the Esquimaux. Virchow, 1890 (*Zeitsch. für Anthropologie*), briefly refers to a sclerosed alveolar nodule in both the upper and lower jaw of a Santa Barbara Indian. Dr. Allen thought it probable that Virchow's claim (*Crania Ethnica Americana*, 1893) that his mass and the one in the Esquimaux lower jaw were the same would not be sustained. Virchow states that the Santa Barbara Indian exhibited the nodules best developed in the upper jaw, which gave his observation a distinct significance. Dr. Allen had lately noted the peculiarity, previously observed by him in the Esquimaux, well-developed in the lower jaw of the so-called Mound Builders. No claim is made that the hyperostosis is of ethnic significance, though the presence of a sclerosed hyperostosed surface constantly present in the Esquimaux and occasionally present in the people of the Mounds, while it has never been noted in the lower jaw of any other tribes, is an interesting fact.

JUNE 19.

REV. HENRY C. MCCOOK, D. D., Vice-President, in the chair.

Twenty-two persons present.

A paper entitled "Some Notes from a Study of the Provancher Collection of Ichneumonidæ," by G. C. Davis, was presented for publication.

JUNE 26.

REV. HENRY C. MCCOOK, D. D., Vice-President, in the chair.

Sixteen persons present.

The following were elected members :—

Elisha C. Hussey, Thomas S. Parvin and Dr. Harris A. Slocum.

Mr. Anstruther Davidson, of San Francisco, was elected a correspondent.

The following were ordered to be printed :—